



Appendix A

United States Forest
Department of Service
Agriculture

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Reply To: 2520/2S30

Date: January 16, 1997

Ed Kelley, Ph.D., Director
Water and Waste Management Division
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502

Dear Dr. Kelley:

As requested by Chris Cudia of the Silver City Surface Water Quality Bureau, please find documentation of the Gila National Forest's analysis of designated uses for stream reaches in and around the Forest. These reaches are proposed for development and implementation of total maximum daily loads (TMDL) for various pollutants.

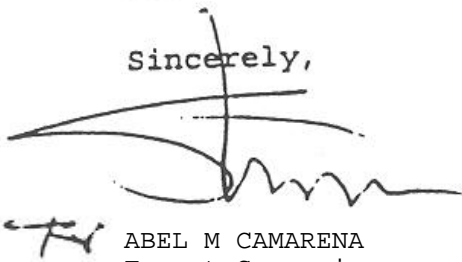
The intent of this analysis is to provide you with local knowledge and supporting references for making changes in designated uses. We are of the opinion that the development of total maximum daily loads of various pollutants is futile if designated uses are not accurately identified.

This analysis was conducted by a variety of personnel with backgrounds in hydrology, watershed management, fisheries, livestock management and biology.

Attached, please find the Forest's recommendation for changes in designated uses and appropriate references by stream reach.

Inquiries relating to any of the above should be directed to Pete Stewart at: 505-388-8201.

Sincerely,



ABEL M CAMARENA
Forest Supervisor

Enclosures

cc:
Guest.Ed
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All Districts



Gila National Forest

Analysis of Designated Uses For Stream Reaches

1. San Francisco River from Centerfire Creek to the New Mexico-Arizona border.

Use for this stretch of river should be changed from cold water fishery (CWF) to marginal cold water fishery (MCWF). This is based on:

- Current recorded temperature monitoring results of June through August temperatures from 78-80 degrees Fahrenheit above the town of Luna.
- Lack of nutrients to support healthy macro-invertebrates for food source for trout.
- Lack of water, both natural fluctuations and the effects of upstream water impoundment and irrigation use in Luna Valley.

Probable sources of threat, in order of impact to the river, are:

- Luna Lake impoundment. The water released over the dam tends to be higher in temperature and algae than would be expected without the impoundment. (8800)
- Irrigation use from June through October in Luna Valley dries out the river from Head-of-the-Ditch to 1.5 miles downstream of Luna. In the few years that the river is not completely dried out, the water level is so low that temperature and algae are unacceptably high. (1200)
- Livestock grazing in the area above the town of Luna has minor impact as evidenced by the good condition of the riparian vegetation and the stability of the streambanks. Livestock grazing below Luna to Centerfire Creek has impacted the riparian habitat. Riparian vegetation in this area was recovering well prior to the 1996 grazing season. Unauthorized grazing in 1996 has resulted in some setback in this recovery, primarily on woody vegetative condition. Streambanks are still relatively stable.. Transect data and photos available. (1500)

2. San Francisco River from Largo Canyon to Centerfire Creek.

Use for this stretch of river should be changed from cold water fishery (CWF) to marginal cold water fishery (MCWF). This is based on:

- Low water levels in most years that result in shallow exposed water subject to high temperature and algal growth.
- Naturally high levels of siltation discharge from Centerfire Creek into the river.
- Hot springs effect on temperature of water.

Probable sources of threat, in order of impact to the river, are:

- Off Road Vehicle (ORV) use in the river bottom along the San Francisco Box Trail and in the actual channel from the trailhead to the San Francisco Hot Springs. -This destabilizes the streambank, deposits silt, provides a risk of pollution, and damages sensitive herbaceous vegetation. (8702)

- Livestock grazing has affected the condition of the riparian vegetative community and streambank stability in the past. Riparian vegetation in this area was recovering well prior to the 1996 grazing season. In 1996, unauthorized grazing has resulted in some setback in this recovery, primarily on woody vegetative condition. Streambanks are relatively stable where ORV use has not caused damage. Transect data and photos available. (1500)
- Natural effects from the natural siltation load from Centerfire Creek and the effects of the hot springs on water temperature also limit the potential of this river to support cold water fisheries. (8600)

3. Centerfire Creek from the mouth on the San Francisco River to the headwaters.

Use for this stretch of river should be changed from high quality cold water fishery (HQCWF) to livestock and wildlife water (L&WW). This is based on:

- Lack of water in the creek. Perennial water occurs only locally near Rita Blanca Spring (less than .25 mile of surface flow), between Centerfire Bog and Section 24, and intermittently below this area to the junction with the river. Irrigation use in Section 24 and downstream further reduces the availability of water in this section during the summer months.
- Low water volume. At best, the creek averages less than 1-foot deep and 3-feet wide below the bog. The trickle from Rita Blanca Spring averages 1-inch deep by 6-inches wide.
- High levels of natural sediment load in the creek. This originates from the upstream Datil alluvial soils. These soils are naturally extremely unstable, fragile, and prone to runoff.

4. Trout Creek from the mouth on the San Francisco River to the headwaters.

Use for this stretch of river should be changed from high quality cold water fishery (HQCWF) to marginal cold water fishery (MCWF). This is based on:

- Lack of water. The New Mexico Department of Game and Fish last stocked trout in this creek in 1970. They discontinued stocking after monitoring revealed that the creek regularly dried up over most of its length. There is intermittent water only in watershed structures above the junction with Romero Creek. The creek also dries up from the barrier area downstream to Luna. The only perennial water occurs in pools between Romero Creek and the lower end of the barrier.
- Lack of sufficient nutrients to support macro-invertebrate population. Ernie Jaquez (NMG&F) indicated that the creek appeared to be naturally low in productivity.

Probable sources of threat, in order of impact to the river, are:

- Lack of water. This appears to be a natural condition. The creek doesn't have a high volume flow even in good precipitation years. Levels fluctuate substantially during the year.

- Natural conditions. There is a lack of prey base for trout and other fish.
- Silviculture. Silviculture should not be listed as a threat at all. Forest management practices (thinning, harvest, and follow-up burning) have actually resulted in some improvement in water availability. Watershed rehabilitation treatments financed by the timber sale receipts has improved both water quality and quantity. Use of best management practices in timber sale development has resulted in the use of streamside buffer zones, removal of roads from sensitive riparian areas, control of sedimentation from road building, and erosion control through use of structures, slash and seeding.

5. Gila River from the New Mexico-Arizona border to Mangas Creek.

Use for this reach (Gila River through the Burro Mountains of the Gila National Forest) should not include marginal cold water fishery. Our rationale for this comes from our riparian monitoring and from fish sampling with the Department of Game and Fish and Western New Mexico University. This monitoring indicates that Fremont Cottonwood and Goodings Willow are common. These species are associated with warmer climate and water which will not support even a marginal cold water fishery.

Reports supporting this recommendation are attached. These include the US F&WS study and the 1996 WNMU Gila River Fish Study. We concur with the warm water fishery designation.

6. Gila River from Mangas Creek to Mogollon Creek.

Same as #5.

7. Gila River from Mogollon Creek to the East and West Forks of the Gila River.

Use for this reach should not include marginal cold water fishery for the reach between Mogollon Creek and the Sapillo Creek confluence. We concur with the listed designation from the Sapillo confluence to the East and West Forks of the Gila and the warm water fishery for the entire reach. The two references listed for item #5 apply to this reach also.

Please be aware that four livestock grazing allotments totalling 32 miles of the Gila River and associated watershed above the Cliff-Gila Valley have either been administratively closed to livestock grazing, or have had livestock removed.

8. San Francisco River from Whitewater Creek to Largo Canyon.

We believe that the MCWF designation is inaccurate and that the WWF designation does apply.

References that support this belief are the New Mexico Fishing Proclamation and the 1979 Habitat Study.

9. Tularosa River from the mouth on the San Francisco River to Apache Creek.

We believe the HQCWF designation is not appropriate nor is the domestic use. This reach should be designated only for L&WW. There are no direct diversions for domestic use of water, nor is there sufficient flow to support any kind of a fishery.

The 1979 Habitat Study and the 1975 Tularosa Habitat Study support this belief.

10. Apache Creek at its mouth on the Tularosa River.

We believe the HQCWF designation is not appropriate. This reach of Apache Creek does not support a fishery due to the intermittent flow regime. This information was provided by the Reserve District Biologist. The appropriate designation is L&WW.

11. Negrito Creek from the mouth on the Tularosa River to the South Fork of Negrito Creek.

We believe that conditions right at the mouth support a MCWF, but the designation of HQCWF is inappropriate due to the intermittent flow regime in this reach.

This information was provided by the Reserve District Biologist.

12. South Fork of Negrito Creek from the confluence with the North Fork to the headwaters.

We disagree with the current HQCWF. The lower end of this reach should be designated MCWF and the upper portion of the reach L&WW due to the ephemeral flow regime.

This information was provided by the Reserve District Biologist. The Forest may have some Biotic Condition Index data to support this belief.

13. Mineral Creek from the mouth on the San Francisco River to the headwaters.

The HQCWF designation for the lower portion is inappropriate due to the ephemeral nature of the flow regime in this reach. From Log Canyon to the headwaters we believe the MCWF designation is appropriate. There is a reproducing salmonid fishery in this reach, but it is very vulnerable.

The reference that supports this belief is the Dr. Turner reference. (Note: Paul Turner is a fishery professor at NMSU and is also a member of the Gila Trout Recovery Team.)

14. Silver Creek from the mouth on Mineral Creek to Little Fannie Mine.

The current designation of HQCWF is inappropriate due to the ephemeral nature of the flow in this reach. Also, this reach may be impacted by past mining activities in the watershed above. We believe the L&WW designation is appropriate.

This information was provided by the Glenwood District Staff officer for Range, Wildlife and Watershed.

15. Whitewater Creek from the mouth on the San Francisco River to Whitewater Campground.

The current HQCWF is inappropriate due to the intermittent flow regime in this reach. Significant channelization has occurred on the lower portion. We believe the appropriate regime is L&WW.

The 1979 Habitat Study supports this belief.

16. San Francisco River from the New Mexico-Arizona border to Whitewater Creek.

We believe the current designation of MCWF is inappropriate based on species composition data from the 1979 Habitat Study. The appropriate designation

should be WW7, based on the same reference. Threats include the San Francisco Hot Springs.

17. Mule Creek from the mouth on the San Francisco River to Mule Springs.

We disagree with the current MCWF designation due to the minimal surface flow that will not support a fishery. We believe the appropriate designation is L&WW.

18. San Francisco River from Dry Creek to Whitewater Creek.

This is an overlap with the San Francisco River from the New Mexico-Arizona border to Whitewater Creek.

We believe the entire reach is WWF not MCWF as currently listed. This is based on the Game and Fish proclamation. This reach contains no reproducing trout. This reach contains a dam to facilitate an irrigation diversion. The dam is located on privately owned lands. Species have been verified by the NM Game and Fish inventories and this is a WWF designation.

19. Middle Fork of the Gila River from the mouth on the West Fork of the Gila River to the USFS Ranger Station.

Use for this stretch of river should be changed from HQCWF to MCWF/WWF. This is based on the following:

- Low water levels in most years that result in shallow water and high temperature.
- Hot springs effect on water temperature.
- High levels of natural sediment loads in the river during runoff. This originates from the upstream Gila conglomerate soils. These soils are prone to runoff.
- Game and fish stock this stream only during the winter months when temperature levels are reduced.

Probable sources of threat, in order of impact to the river, are:

- Natural erosive soils.
- Livestock grazing is believed to have minimal impact. The majority of the watershed above this stretch of river is not grazed. A Forest Service barn is located within the floodplain in this area.

The reference that supports this belief is the 1979 Habitat Study. WNMU did not survey the Middle Fork.

20. East Fork of the Gila River from the confluence with the West Fork of the Gila River to the confluence of Beaver and Taylor Creeks.

Use for this stretch of river should be changed from HQCWF to MCWS/WWF. This is based on the following:

- Hot springs effect on water temperature.

- High levels of sediment loads in the river during runoff. This originates from the upstream Gila conglomerate soils. These soils are prone to runoff. In addition, large portions of the upper watershed have burned and contribute increased sediment levels during runoff.
- Fish surveys conducted in this stretch of stream reveal native species that occupy warmer water (Spike dace, Loach minnow, Sonoran Desert sucker, Mountain Desert sucker, Roundtail chub, Chihuahua catfish, etc.) These species would not occur at present numbers with colder water temperatures. Rainbow trout are found during the winter months.

Probable sources of threat to the river are:

- Management of private land located on East Fork. Heavy grazing, removal of cottonwoods, and channel alteration contribute increased sediment to this portion of the river.
- Livestock grazing has inhibited recovery of riparian regeneration within the Diamond Bar and Jordan Mesa allotments.
- The Divide fire in 1989 and the Bonner fire in 1995 burned over 20,000 acres in the upper watershed. These areas are currently recovering, but still contribute increased sediment during runoff periods.

References to support these beliefs are the WNMU 1996 Fish Study and the 1979 Habitat Study.

21. West Fork of the Gila River from the confluence with the East Fork of the Gila River to above the Gila Cliff Dwellings.

Use for this stretch of river should be changed from HQCWF to MCWF/WWF. This is based on the following:

- Hot springs effect on water temperature.
- Low water levels in most years that result in shallow water and high temperature.
- High levels of sediment loads in the river during runoff. This originates from the upstream Gila conglomerate soils. These soils are prone to runoff.
- Fish surveys conducted in this stretch of stream reveal native species that occupy warmer water (Spike dace, Loach minnow, Sonoran Desert sucker, Mountain Desert sucker, Roundtail chub.) These species would not occur at present numbers with colder water temperatures. Rainbow trout are found during the winter months.
- Low water levels in most years that result in shallow water and high temperature.

Probable sources of threat to the river are:

- Management of private land located on the West Fork. Heavy grazing and irrigation contribute to increased water temperatures.
- Livestock grazing within the Forest watershed has minimal impact. There is one special use permit for yearlong horses within the watershed of this area.

- High levels of sediment loads in the river during runoff. This originates from the upstream Gila conglomerate soils. These soils are prone to runoff.

The 1979 Habitat Study is the basis for our beliefs.

22. Gilita Creek from the confluence with Snow Canyon Creek to willow Creek.

We concur with the HQCWF designation. The 1979 Habitat Study supports this designation.

23. Willow Creek from the mouth on Gilita Creek to the headwaters.

We concur with the HQCWF designation. The 1979 Habitat Study supports this designation.

24. Canyon Creek from the mouth on the Middle Fork of the Gila to the headwaters.

Use for this stretch of river should be changed from HQCWF to MCWF. This is based on the following:

- Low water levels in most years that result in shallow water and high temperature.
- High levels of sediment loads in the creek during runoff. This originates from the upstream Gila conglomerate soils. These soils are prone to runoff.
- Lack of nutrients to support healthy macro- invertebrates.

Probable sources of threat to the creek are:

- Lack of water. This appears to be a natural condition. This creek does not produce a high volume of flow even in good precipitation years. Levels fluctuate substantially during the year.
- Livestock grazing has a minimal impact. However, unauthorized grazing from the Black mountain allotment has inhibited riparian regeneration. Concentrated elk winter use in this area may have some effects.

25. Turkey Creek from the mouth on the Gila River to the headwaters.

We disagree with the current HQCWF designation. The lower part of the reach is intermittent and contains hot springs. We believe the appropriate designation is MCWF. This belief is supported by the 1979 Habitat Study.

26. Snow Canyon Creek from the confluence with Gilita Creek to Snow Lake.

We disagree with the current HQCWF designation. The flow regime is intermittent and does not support a fishery. The appropriate designation is L&WW.

27. Iron Creek from the mouth on the Middle Fork of the Gila River to the headwaters.

We concur with the current HQCWF designation. The upper end of the reach has not been grazed by domestic livestock since 1952. Agriculture is not a source of pollution.

28. Taylor Creek from the confluence with Beaver Creek to Wall Lake.

Use for this stretch of river should be changed from HQCWF to MCWF/WWF. This is based on the following:

- High levels of sediment loads in the river during runoff. This originates from the upstream Gila conglomerate soils. These soils are prone to runoff.
- Elevated water temperatures and heavy metals.
- Probable sources of threat to the river are:
 - Wall Lake impoundment contributes to reduced water temperatures.
 - Upstream lead mine is not a factor.
 - Heavy livestock grazing on private land along this stretch of river contributes to increased sediment and elevated temperatures.

Belief is supported by 1979 Habitat Study.

29. Diamond Creek from the mouth on the Rant Fork of the Gila River to the headwaters.

Use for this stretch should be changed to HQCWF for the stretch of river above the Caves Cabin to the headwaters and MCWF/WWF from the Donaldson tract downstream to the confluence with the East Fork. This is based on the following:

- Lack of permanent water between these two reaches.
- Elevated temperatures and presence of native warm water fish in the lower reach.

Probable sources of threat are:

- Unstable watershed in headwaters due to the 1989 Divide fire. increased sediment levels occur during runoff.
- Livestock grazing on the Diamond Bar allotment has reduced riparian vegetation and inhibited bank stability.

References supporting our beliefs are data collected by the Gila Trout Recovery Team.

30. Black Canyon Creek from the mouth on the East Fork of the Gila River to the headwaters.

Use for this stretch should be changed to MCWF from the current HQCWF designation. This is based on the following:

- Low volume of flow in most years.
- Elevated water temperatures.
- Unstable and scoured channel with tremendous sediment movement.
- Low macro-invertebrate population.

Probable sources of threat are:

- Unstable watershed in headwaters due to the 1995 Bonner Fire.
- Livestock grazing on the Diamond Bar allotment has reduced riparian vegetation and inhibited bank stability.
- Silviculture should be removed as a probable source of threat. This area is almost entirely within wilderness and there is no past or planned silvicultural treatment in the area.

The 1979 Habitat Study supports the above.

31. Sapillo creek from the mouth on the Gila River to Lake Roberts.

We disagree with the current HQCWF designation.

Low and intermittent flow are the primary reasons the designation should be changed to MCWF. The 1979 Habitat Study supports this.

32. Mogollon Creek, perennial portions above the USGS gage.

We concur with the HQCWF designation.

33. Bear Creek at the headwaters.

Only a small portion of the Forest lies within this reach. The ephemeral flow regime does not support a fishery. We concur only with the L&WW portion of the designation. We disagree with the MCWF and WWF designations.

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